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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,637	03/31/2000	PAUL S. BRADLEY	1018.085US1	1780

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EXAMINER

LIANG, GWEN

ART UNIT	PAPER NUMBER
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2172

DATE MAILED: 02/27/2004

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/540,637

Applicant(s)

BRADLEY ET AL.

Examiner

GWEN LIANG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 10-14, 16-18, 20-22 and 24-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-14, 16-18, 20-22 and 24-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

1. This action is responsive to communications: Amendment D, filed on 12/22/2003. Claims 1-7, 10-14, 16-18, 20-22, 24-33 are pending. Claims 1, 10, 16, 20 and 28 are independent claims.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-7 and 24, 29, 10-14 and 25, 30, 16-18 and 26, 31, 20-22, and 27, 32, 28-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In independent claims 1, 10, 16, 20 and 28, the claimed subject matter "probability model" or "probability models" is not defined in the specification.

Claim Objections

4. Claims 10-14 and 25, 30, 16-18 and 26, 31 are objected to because of the following informalities:

In independent claims 10 and 16, it is unclear to the examiner what it means by "using a likelihood similarity scoring approach or a correlation similarity scoring approach between the particular record and at least one probability model". The claim does not set forth any steps involved in the method/process. It is unclear what method/process applicant is intending to encompass to **use an approach between the record and one model**.

Appropriate correction is required.

Response to Arguments

5. Applicant's arguments regarding all the pending claims filed on 12/22/03 have been fully considered but they are not persuasive.

Applicant's arguments regarding claim 1 under 35 U.S.C. 112 first paragraph rejection have been considered but they are not persuasive. Per Applicant's arguments that the term "Probability model" is adequately conveyed in several places in the specification, including on page 12 line 15 to page [12] 13 line 1 and that the limitation "model" and its essential role within the invention is well discussed in the applicants' specification at page 2 lines 15-20, have been considered but they are not persuasive.

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The description at page 2 lines 15-20 in the specification teaches predictions based on modeling. However nowhere in the specification is the term "probability model" clearly defined as claimed in the applicants' invention. Therefore, the previous rejection is maintained.

Applicant's arguments regarding that Post et al. does not teach or suggest the use of a group probability model in predicting the vote of a group member as recited in claim 1 have been considered but they are not persuasive. The applicants' arguments are moot based on same reasons stated above for the 112 rejection of claim 1, because the term "probability model" is not supported in the specification. Also Applicant's arguments regarding that Post et al. does not teach nor suggest the use of the item values of a group to create a probability model have been considered but they are not persuasive. The applicants' arguments are moot based on same reasons stated above for the 112 rejection of claim 1, because the term "probability model" is not supported in the specification. Furthermore, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (for example, "the use of the item values of a group to create a probability model" (Applicant's remarks page 10, paragraph 1) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's arguments regarding claim 28 that a similarity scoring approach featured in the claim reflects correlation similarity between one group of the plurality of

groups and a particular record and this claim is neither shown nor suggested by the Breese et al reference either alone or in combination with the Post et al. reference have been considered but they are not persuasive. The term "correlation similarity" is interpreted by the examiner as the same as "likelihood similarity" as claimed in claim 1. Since claim 28 is modeled after claim 1, the examiner maintains that claim 28 is rejected as stated in the office action based on the same reasons given above for the rejection of claim 1.

The preceding discussion applies to the remaining pending claims. The grounds of rejection corresponding to all pending claim are given in this Office Action.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6, 10-14, 16-17, 20-21 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breeese et al., "Breeese" (Empirical Analysis of Predictive Algorithms for Collaborative Filtering), and further in view of Post et al., "Post" (WO Patent No. 98/02835).

With respect to claim 1, Breeese discloses a method comprising:

consolidating data organized into records and items, such that each record has a value for each item, into a plurality of groups summarized by a plurality of probability

models derived from item values (See for example: Section 2.1 Memory-Based Algorithms, wherein the user database consists of a set of votes $V_{i,j}$, corresponding to the vote for user i on item j ; therefore it is obvious that the data is organization into records (corresponding to users) and items and each record has a value (e.g. vote) for each item; Section 2.3.1 Cluster Models, paragraph 1, wherein the prediction is derived from a database of user votes from a sample or population of other users, which illustrates the existence of plurality of groups in the database.)

based on the plurality of groups, determining a predicted vote for a particular record and a particular item using a similarity scoring, approach (See for example: Section 1. Introduction, paragraph 1; wherein the preference patterns of other users who have similar interests are used to find content of interest to a user; Section 2. Collaborative filtering Algorithms, paragraph 1; Section 2.1 Memory-Based Algorithms.); and,

outputting the predicted vote for the particular record and the particular item (See for example: Section 3.1 Evaluation Criteria paragraphs 1-3, wherein each piece of content has an associated estimated rating,, and the user interface displays this estimate.)

However Breeese does not explicitly teach "an approach that reflects likelihood similarity between one probability model that summarized one group of the plurality of groups and the particular record".

Post teaches an approach that reflects likelihood similarity between one probability model that summarized one group of the plurality of groups and the particular record (See for example: page 40 lines 14-19, wherein the products will not be compared to the

individual based on the individual's characteristics and preferences; the products will be compared to the individual based on the individual's assigned group. For example, if the product is appropriate for the individual's group, then it will be accepted for the individual. It is obvious that the predicted vote is based on the likelihood similarity between a particular record (i.e. an individual) and a group to which this individual is assigned.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate an approach that reflects likelihood similarity between at least one probability model that characterizes an essentially complete group of the plurality of groups and the particular record as disclosed in Post into the similarity scoring approach as taught in Breeese. One advantage of using a grouping system is that the product recommendations could be recommended for a whole group through some mass media, such as magazines, television or newspapers. This would allow for the efficient delivery of personalized recommendation (See for example: page 40 lines 19-23). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claim 2 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Breeese teaches a method wherein consolidating the data into the plurality of groups comprises consolidating the data into a plurality of clusters (See for example: Section 2.3.1 Cluster Models, paragraph 1).

Claim 3 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Breeese teaches a method wherein consolidating the data into the plurality

of groups comprises consolidating the data into a plurality of descriptors (See for example: Section 2.2.1 Default Voting, paragraph 3; Section 3.1 Evaluation Criteria, paragraphs 6 and 7; Section 3.2 Datasets, paragraph 3).

Claim 4 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Breeese teaches a method wherein each record is referred to as at least one of: a row, and a user (See for example: Section 2 Collaborative Filtering Algorithms, paragraph 2; Section 2.1 Memory-Based Algorithms; Section 2.1.2 Vector Similarity).

Claim 5 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Breeese teaches a method wherein each item is referred to as at least one of: a column, and a dimension (See for example: Section 2 Collaborative Filtering Algorithms, paragraph 2; Section 2.1 Memory-Based Algorithms).

Claim 6 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Breeese teaches a method wherein each record comprises a user, and each item comprises a product, such that determining the predicted vote for the particular record and the particular item comprises determining whether a particular user will purchase a particular product (See for example: Abstract, paragraph 1; Section 2 Collaborative Filtering Algorithms, paragraph 1).

Claims 10 and 11; 13; 14 are rejected on grounds corresponding to the reasons given above for claims 1, 4, 5.

Claim 12 is rejected on grounds corresponding to the reasons given above for claims 2 and 3.

Claim 16 is rejected on grounds corresponding to the reasons given above for claim 1. Furthermore the "clusters" in claim 16 are regarded as equivalent to "groups" in claim 1.

Claim 20 is rejected for the reasons set forth hereinabove for claim 16 and furthermore Post teaches a method wherein a predicted vote is based on descriptors instead of clusters (See for example: page 41 lines 6-10, wherein it is obvious that each category or group has to have an existing descriptor in order to fit the individual within one previously defined category or grouping.).

Claims 17, 21 are rejected on grounds corresponding to the reasons given above for claim 6.

Claim 24 is rejected for the reasons set forth hereinabove for claim 1 and furthermore Post teaches a method wherein the particular record is contained within the records that are organized into groups and wherein a probability that a given group contains the particular record is used to reflect likelihood similarity (See for example: page 40 lines 1-5).

Claims 25-27 are rejected on grounds corresponding to the reasons given above for claim 24.

Claim 28 is rejected on grounds corresponding to the reasons given above for claim 1.

8. Claims 7, 18, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breeese et al., "Breeese" (Empirical Analysis of Predictive Algorithms for Collaborative Filtering), further in view of Post et al., "Post" (WO Patent No. 98/02835), and further in view of Lashkari et al., "Lashkari" (EP Patent No. 0,751,471).

Claim 7 is rejected for the reasons set forth hereinabove for claim 1. However the combination of Breeese and Post does not explicitly teach "a method wherein each record comprises a user, and each item comprises a web page".

Lashkari teaches a method wherein each record comprises a user, and each item comprises a web page, such that determining the predicted vote for the particular record and the particular item comprises determining whether a particular user will view a particular web page (See for example: page 5 lines 14-18).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to store a web page as disclosed in Post into each record as an item in the similarity scoring, approach as taught in the combination of Breeese and Post so that World Wide Web pages may be included in one type of items to be recommended to a user (See for example: page 5 lines 14-15). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

Claims 18, 22 are rejected on grounds corresponding to the reasons given above for claim 7.

9. Claims 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breeese et al., "Breeese" (Empirical Analysis of Predictive Algorithms for Collaborative Filtering), further in view of Post et al., "Post" (WO Patent No. 98/02835), and further in view of Aggarwal et al., "Aggarwal" (U.S. Patent No. 6,487,539).

Claim 29 is rejected for the reasons set forth hereinabove for claim 1. However the combination of Breeese and Post does not explicitly teach a method wherein said probability model for a group is defined by a plurality of data points having a value in the range of [0,1] determined from a plurality of data records from the group which indicate a probability of observing a value of [1] for an item within the group".

Aggarwal teaches a method wherein said probability model for a group is defined by a plurality of data points having a value in the range of [0,1] determined from a plurality of data records from the group which indicate a probability of observing a value of [1] for an item within the group (See for example: col. 8 lines 16-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to define said probability model for a group by a plurality of data points having a value in the range of [0,1] determined from a plurality of data records from the group which indicate a probability of observing a value of [1] for an item within the group as disclosed in Aggarwal in the similarity scoring, approach as taught in the combination of Breeese and Post in order to find the overall similarity between the customers for finding the closest peer group (See for example: col. 8 lines 9-10). One of ordinary skill in the art would be motivated to make the aforementioned combination with reasonable expectation of success.

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Claims 30-33 are rejected on grounds corresponding to the reasons given above
for claim 29.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aggarwal et al., U.S. Patent 6,356,879: an automated computer based apparatus and method for making product recommendations over an electronic commerce network.

Sheppard, U.S. Patent 6,026,397: a data analysis system and method are provided that substantially eliminate or reduce disadvantages and problems associated with previously developed data analysis tools.

Fayyad et al., U.S. Patent 6,263,337: a data mining system for use in finding clusters of data items in a database or any other data storage medium.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

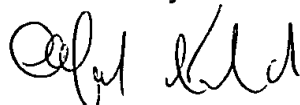
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GWEN LIANG whose telephone number is 703-305-3985. The examiner can normally be reached on 9:00 A.M. - 5:30 P.M. Monday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN BREENE can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

G.L.
20 February 2004



ALFORD KINDRED
PRIMARY EXAMINER